

## PATENT ABSTRACTS OF JAPAN

(11)Publication number : 06-102420

(43)Date of publication of application : 15.04.1994

(51)Int.Cl. G02B 6/00  
B26D 1/30  
B26D 3/00  
H02G 1/12

(21)Application number : 04-254380

(71)Applicant : SUMITOMO ELECTRIC IND LTD

(22)Date of filing : 24.09.1992

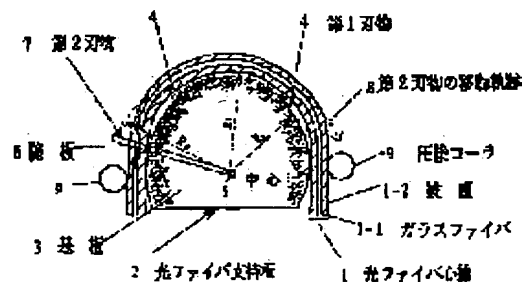
(72)Inventor : FUKUTOME KOJI  
SEIKE TAKEO

## (54) METHOD AND DEVICE FOR REMOVING COATING OF COATED OPTICAL FIBER

## (57)Abstract:

PURPOSE: To provide the method and device for removing the coating in the intermediate part of a coated optical fiber with a simple operation.

CONSTITUTION: This method and device consist in preparing a supporting plate 2 which consists of a base plate 3 formed of a first arc of a radius R1 in a part of its outer periphery and is erected with first blades 4, 4 radially projecting by as much as nearly the coating thickness at both ends of this arc, pressing the coated optical fiber 1 along the first arc to bite the coating 1-2 of the coated fiber onto the first blades 4, 4 and removing the coating 1-2 by turning an arm plate 6 which is provided with a second blade 7 at one end and is provided with the other end coaxially with the center 5 of the first arc.



## LEGAL STATUS

[Date of request for examination] 23.10.1998

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number] 3018776

[Date of registration] 07.01.2000

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's]

decision of rejection]

[Date of extinction of right]

Copyright (C); 1998,2003 Japan Patent Office

## \* NOTICES \*

Japan Patent Office is not responsible for any damages caused by the use of this translation.

1.This document has been translated by computer. So the translation may not reflect the original precisely.

2.\*\*\*\* shows the word which can not be translated.

3.In the drawings, any words are not translated.

---

## CLAIMS

---

### [Claim(s)]

[Claim 1] Are the approach of removing covering of the interstitial segment of a plastic coated fiber, and it is formed with the 1st radii in which a part of periphery of a substrate has a predetermined radius. The support plate with which the 1st cutter was set up by the radial by projecting by covering thickness mostly is prepared for the both ends of these radii. A plastic coated fiber is pushed along with the 1st radii. Covering of this core wire to the 1st cutter \*\*\*\*\*. The covering removal approach of the plastic coated fiber which the 2nd cutter is formed in an end, rotates relatively [ radii / 1st ] \*\*\*\* by which the other end was prepared in the core of the 1st radii, and the coaxis, is made to remove covering of the outside of the removal section, and is characterized by removing covering of the left-behind inside after an appropriate time.

[Claim 2] The both-ends periphery of said 1st cutter is the covering removal approach of the plastic coated fiber according to claim 1 characterized by being formed with the 2nd radii which have a radius shorter than the die length deducted by covering thickness, and pushing and supporting said plastic coated fiber along with the 1st radii and the 2nd radii from the radius of said 1st radii.

[Claim 3] The support plate with which it is equipment from which covering of the interstitial segment of a plastic coated fiber is removed, and was formed with the 1st radii in which a part of periphery of \*\* substrate has a predetermined radius, and the 1st cutter was set up by the both ends of these radii by projecting by covering thickness mostly at the radial, \*\* The 2nd cutter is formed in an end and provide \*\*\*\* which has the center of rotation in the other end. the die length of said 1st radii is set as the die length corresponding to the covering removal section -- having -- said \*\*\*\* -- the center of rotation and core of said 1st radii -- a coaxis -- and the covering stripper of the plastic coated fiber characterized by being attached free [ rotation ] relatively.

[Claim 4] The both-sides periphery of said 1st cutter is the covering stripper of the plastic coated fiber of the 3rd publication of a claim characterized by being formed with the 2nd radii which have a radius shorter than the die length deducted by covering thickness, and supporting said optical fiber along with the 1st radii and the 2nd radii from the radius of said 1st radii.

---

[Translation done.]

\* NOTICES \*

Japan Patent Office is not responsible for any damages caused by the use of this translation.

- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.\*\*\*\* shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

---

DETAILED DESCRIPTION

---

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the method of removing covering of a plastic coated fiber, and its equipment.

[0002]

[The technique of \*\*\*\*] The interstitial segment of two optical fibers is welded and the plastic lining of a plastic coated fiber, such as manufacturing a coupler or manufacturing a filter using a multi-core fiber, is removed in many cases. Conventionally, as an approach of removing covering of a plastic coated fiber by the interstitial segment, infeed is first put into the perimeter for the both ends of the removal range of the covering 1-2 of a plastic coated fiber 1 in the fixed depth with the 1st cutter 4 as shown in process drawing of drawing 4 (this drawing (a)). Next, carry this core wire 1 on the optical fiber support pulley 19, and it holds with the pressure-welding roller 9. infeed (this drawing (b)) and a pulley 19 are rotated for the 2nd cutter 7 from a tangential direction to near the glass fiber 1-1 (this drawing (c)), and upside covering is removed (this drawing (d)) -- subsequently It is the approach of deleting the whole covering of an interstitial segment, by removing core wire 1 from a pulley 19, and removing lower covering (this drawing (e)) (JP,2-30450,A).

[0003]

[Problem(s) to be Solved by the Invention] Since such an approach puts infeed into the perimeter with the 1st cutter, a blemish may take lessons from thin glass fiber, and it may break the both ends of the covering removal range of a plastic coated fiber into it. moreover, although fix this core wire to a pulley 19, infeed is put in to near the glass fiber 1-1 with the 2nd cutter, a pulley 19 is rotated and upside covering is removed, the actuation which cuts the 2nd cutter deeply to about one to one glass fiber is difficult -- it cut. Furthermore, this approach also had the problem of being inapplicable to a multi-core fiber in order to put infeed into the perimeter of a plastic coated fiber. Then, this invention aims at offering the approach and equipment from which covering of the plastic coated fiber which solved this trouble is removed.

[0004]

[Means for Solving the Problem] This invention is the approach of removing covering of the interstitial segment of a plastic coated fiber. It is formed with the 1st radii in which a part of periphery of a substrate has a predetermined radius, and the support plate with which the 1st cutter was set up by the radial by projecting by covering thickness mostly is prepared for the both ends of these radii. A plastic coated fiber is pushed along with the 1st radii. Covering of this core wire to the 1st cutter \*\*\*\*\*, It is the covering removal approach of the plastic coated fiber which the 2nd cutter is formed in an end, rotates relatively [ radii / 1st ] \*\*\*\* by which the other end was prepared in the core of the 1st radii, and the coaxis, is made to remove covering to the outside of the removal section, and removes covering of the left-behind inside after an appropriate time.

[0005] Here, the both-sides periphery of said 1st cutter is the covering removal approach of the plastic coated fiber which is formed with the 2nd radii which have a radius shorter than the die length deducted by covering thickness, and pushes and supports said plastic coated fiber along

with the 1st radii and the 2nd radii from the radius of said 1st radii.

[0006] Moreover, this invention is equipment from which covering of the interstitial segment of a plastic coated fiber is removed. \*\* The support plate with which it was formed with the 1st radii in which a part of periphery of a substrate has a predetermined radius, and the 1st cutter was set up by the both ends of these radii by projecting by covering thickness mostly at the radial, \*\* The 2nd cutter is formed in an end and provide \*\*\*\* which has the center of rotation in the other end. the die length of said 1st radii is set as the die length corresponding to the covering removal section -- having -- said \*\*\*\* -- the center of rotation and core of said 1st radii -- a coaxis -- and it is the covering stripper of the plastic coated fiber attached free [ rotation ] relatively.

[0007] Here, the both-sides periphery of said 1st cutter is the covering stripper of the plastic coated fiber with which it is formed with the 2nd radii which have a radius shorter than the die length deducted by covering thickness, and said optical fiber is supported along with the 1st radii and the 2nd radii from the radius of said 1st radii.

[0008]

[Function] According to the above-mentioned approach, this invention has the description in the place which removes covering by rotating the 2nd cutter in which the optical fiber held on the peripheral face of the 1st radii of a radius R1 was attached by \*\*\*\*. An example explains the detail.

[0009]

[Example] Hereafter, the example of this invention is explained with reference to an accompanying drawing. In addition, in explanation of a drawing, the same sign is given to the same element, and the overlapping explanation is omitted.

[0010] The example which starts this invention based on drawing 3 from drawing 1 is explained. Drawing 1 is the explanatory view of the removal approach of this example, and on the support plate 2 with which the 1st cutter 4 and 4 was attached on the peripheral surface of the semicircle-like substrate 3 at the radial, this example pushes a plastic coated fiber 1, is fixed, carries out cutting removal of the outside of covering 1-2 by rotating the 2nd cutter 7 attached in the end of \*\*\*\* 6 along with a locus 8, and is the approach of removing inside covering, after that.

[0011] A plastic coated fiber 1 is formed by the plastic lining 1-2 prepared on glass fiber 1-1. A substrate 3 is a plate of the shape of a semicircle which has the 1st radii which have the predetermined radius of curvature R1 in a periphery. In the both ends of the 1st radii, it projects by covering thickness mostly from the peripheral face of these radii at a radial, the 1st cutter 4 and 4 is set up, and the die length of the 1st radii is set up corresponding to the covering removal section. Thus, a plastic coated fiber 1 is pushed on the formed support plate 2, and this is held with the pressure-welding rollers 9 and 9. At this time, infeed enters inside covering of core wire 1 with the 1st cutter 4 and 4. \*\*\*\* 6 has the rotation locus 8 of the 2nd cutter 7 which had the radius R0 of the die length which applied the thickness of covering 1-2, and the diameter of glass fiber 1-1 to the radius R1 of said 1st radii, made it the same with the core of the 1st radii, was relatively attached pivotable with the support plate 2, and was attached in the end of \*\*\*\* on the periphery of a radius R0.

[0012] Next, the covering removal process of this example is explained based on drawing 2. As shown in this drawing (b), the core wire 1 shown in this drawing (a) is pushed against the peripheral face of a support plate 2, and is held with the pressure-welding roller 9. At this time, infeed goes into the inside both ends of the core-wire removal section with the 1st cutter 4 and 4. This infeed is because inside covering can be removed easily at the end. If the 2nd cutter 7 is rotated along with the radii of a radius R0, outside covering will be cut (this drawing (c)), and upside covering will be removed if it advances further (this drawing (d)).

[0013] Here, the both-sides periphery of the 1st cutter 4 and 4 is formed with the radii of the short radius R2 more than a covering thickness part at least from the radius of the 1st radii. Although the optical fiber 1 pushed on the 1st and the 2nd radii cannot cut covering by the part of the 2nd radii even if it rotates the 2nd cutter 7 since the radius of curvature is small, it cuts outside covering in the 1st radii part. Finally core wire 1 is removed from a support plate 2, and

the inside of covering 1-2 is removed (this drawing (e)). Since infeed goes into the both ends of internal covering with the 1st cutter 4 and 4 and up covering is removed, this can be removed easily.

[0014] Drawing 3 is the side elevation showing the configuration of this example, and a support plate 2 is relatively attached rotatable about \*\*\*\* and a shaft 10. The 2nd cutter 7 is attached rotatable around the shaft of a cutter at \*\*\*\* 6 and a right angle, and is fixed according to \*\*\*\*. It is because accommodation in the direction for which it is most suitable for the direction of a cutting edge to cut covering is enabled. A shaft 10 rotates through pulleys 11 and 18 and a belt 17 by the motor 12. A motor 12, a shaft 10, and \*\*\*\* 6 are attached in a movable carriage 13, a movable carriage 13 is attached on the base 16, and are \*\*\*\*ed by the motor 15, and serve as horizontal migration in the direction of an arrow head through 14. The location where core wire touches the 2nd cutter can be changed, and it enables it to use a cutting edge effectively by this migration.

[0015]

[Effect of the Invention] As explained to the detail above, according to this invention, a plastic coated fiber can be pushed against a support plate, outside covering can be deleted only by rotating \*\*\*\*, this core wire can be removed from a support plate, and it can remove by easy actuation of removing covering of the remaining insides. Moreover, this invention is applicable not only about the plastic coated fiber of a single alignment but a multi-core tape fiber.

---

[Translation done.]

## \* NOTICES \*

Japan Patent Office is not responsible for any damages caused by the use of this translation.

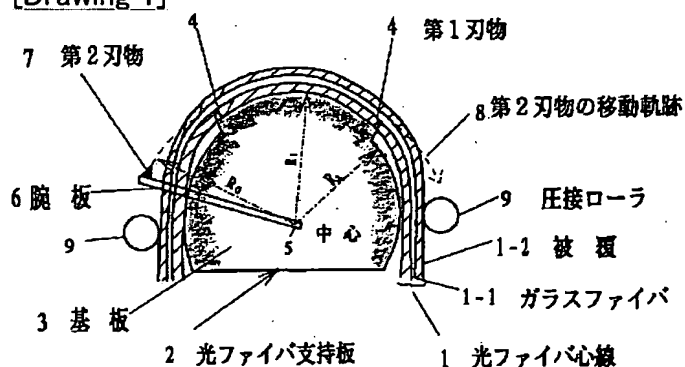
1.This document has been translated by computer. So the translation may not reflect the original precisely.

2.\*\*\* shows the word which can not be translated.

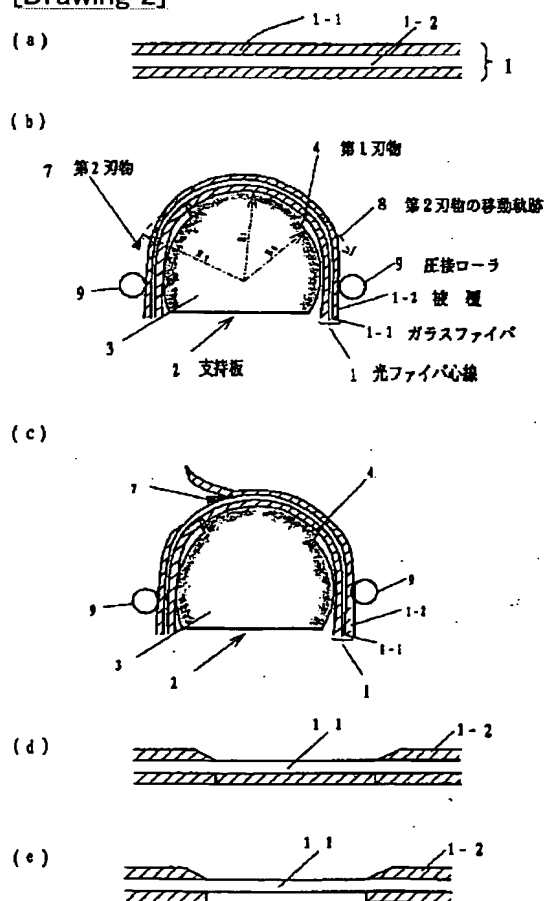
3.In the drawings, any words are not translated.

## DRAWINGS

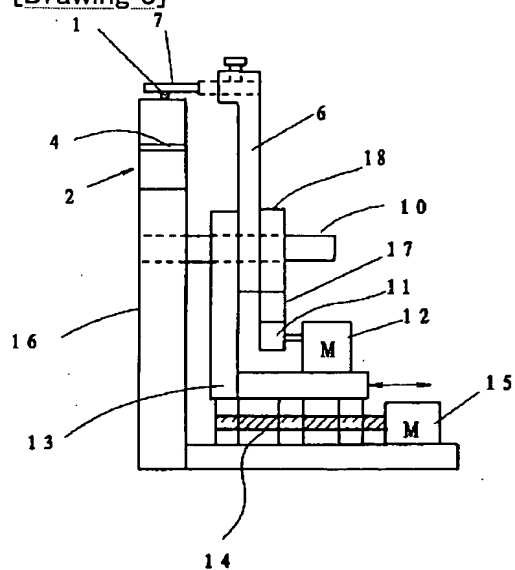
[Drawing 1]



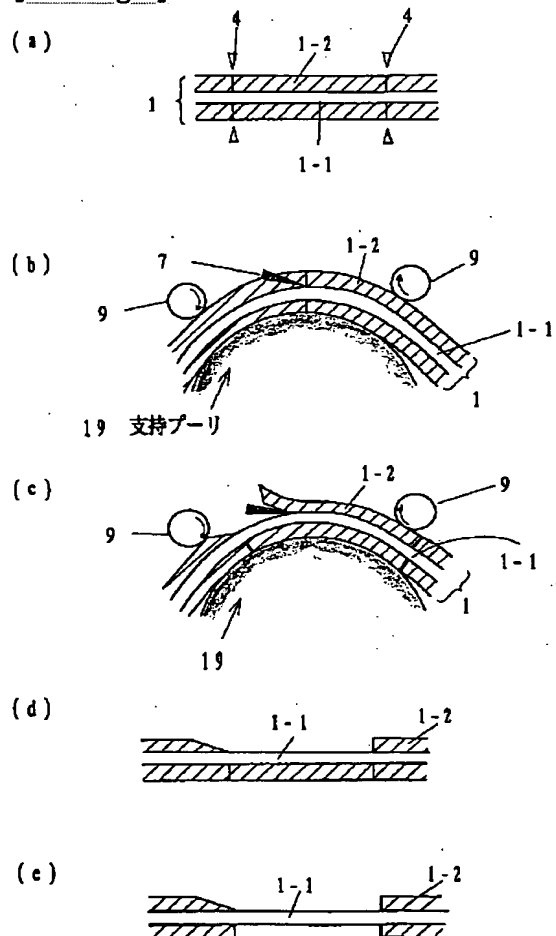
[Drawing 2]



[Drawing 3]



[Drawing 4]



[Translation done.]